Cave Swallows
Lesson 2
Classroom

Taxonomy and Identification of the Cave Swallow

Learner Outcomes

The learner will

- Classify organisms.
- Identify a species using contrasting characteristics.
- List physical characteristics of a well-known species.
- Classify organisms using a dichotomous key.

Background

Approximately two million species of organisms have been scientifically classified to date with several million additional forms awaiting such treatment. While some species are distinct enough to be recognized immediately, most exist with sibling species that are often closely related and share many common characteristics used in classification. In this lesson students will (1) use a dichotomous key involving eight common Chihuahuan Desert species, (2) describe, using a field guide, the eight species of swallows which regularly occur in North America and (3) develop and test their own dichotomous key using the characteristics developed in part two. This will show them the purpose of taxonomy, teach them to observe physical characteristics in related species and learn how to use a dichotomous key.

Materials

- Supplement number 4.4
- Photos or field guides showing the following mammals: Mexican free-tailed bat, striped skunk, gray fox, coyote, mountain lion, rock squirrel, porcupine, mule deer
- Any current field guide that shows all 8 species of North American swallows
  The most widely available books are *Field Guide to the Birds of North America*, ISBN 0-8744-472-7 or *Birds of North America*, ISBN 0-307-33656-5.

Assessments

- Class work: classification according to characteristics
- Dichotomous key

Activity #1

Study Proposal and Field Protocol

1 class period

Procedure

The teacher will

- Invite Steve West or a NPS/Carlsbad Caverns NP resource manager to review the study proposal and field protocol with the class.

Activity #2

Using a Dichotomous Key
1 class period

Procedure
The teacher will

- Display unlabeled photos of the following mammal species that occur throughout southern New Mexico and west Texas: Mexican free-tailed bat, striped skunk, gray fox, coyote, mountain lion, rock squirrel, porcupine and mule deer.
- Instruct students on how to use the dichotomous key. If the above mammals are not common to your area, you may wish to construct a dichotomous key of other plants and/or animals or of everyday objects.

Activity #3
Determining Physical Characteristics
1 class period

Procedure
The teacher will

- Display the eight main species of swallows that occur widely in North America. They are as follows: purple martin (*Progne subis*), tree swallow (*Tachycineta bicolor*), violet-green swallow (*Tachycineta thalassina*), northern rough-winged swallow (*Stelgidopteryx serripennis*), bank swallow (*Riparia riparia*), barn swallow *(Hirundo rustica*), cliff swallow (*Petrochelidon pyrrhonota*) and cave swallow *(Petrochelidon fulva*).
- Instruct each student to describe at least six characteristics of each species. These will include such things as size, plumage and color patterns.

Activity #4
Constructing a Dichotomous Key
1class period

Procedure
The teacher will

- Instruct students to construct their own dichotomous key using the one in Activity #2 as an example. The students will use the physical characteristics they determined in Activity #3 as the items to be used in the construction of their own key.
- Have students take pictures of the birds from the field guides and run them through the key for accuracy. They need to understand that there are many possible variations that will still provide the correct answer.